to those embodiments. Alternative embodiments, examples, and modifications which would still be encompassed by the invention may be made by those skilled in the art, particularly in light of the foregoing teachings.

Furthermore, those skilled in the art will appreciate that various adaptations and modifications of the above-described preferred embodiments can be configured without departing from the scope and spirit of the invention. Therefore, it is to be understood that, within the scope of the appended claims, the invention may be practiced other than as specifically described herein.

What is claimed is:

1. A data signal embodied in a carrier wave readable by a computing system and encoding instructions for executing a process performing a method comprising:

collecting activity information of an individual with an actigraph,

providing a data series representing wake states and sleep states of the individual based on an analysis of the activity information using a sleep scoring system,

selecting a function based on the data series,

calculating a cognitive performance capacity based on the selected function,

modulating the cognitive performance capacity with a time of day value, and

outputting the modulated value as the predicted cognitive performance.

2. The computer data signal of claim **1**, further encoding instructions for executing a process performing the additional method comprising:

receiving task information,

determining a task value based upon at least the task information, and

repeating the steps of collecting, providing, selecting, calculating, modulating, receiving, and determining at least two times; and

wherein the modulating step includes modulating the modulated value from the modulation of the cognitive performance capacity with the time of day value with the task value.

3. A method in an actigraph for determining a cognitive performance level comprising:

accumulating a data series representing wake states and sleep states of an individual based on analysis of movement detected by the actigraph using a sleep scoring system,

selecting a function based on the data series,

determining a cognitive performance capacity eased on the selected function and a prior cognitive performance capacity,

modulating the cognitive performance capacity with a time of day value,

providing the modulated value,

receiving task information, and

determining a task value based upon at least the task information; and

wherein the modulating step includes modulating the modulated value from the modulation the cognitive performance capacity with the time of day value with the task value.

4. The method according to claim **3**, further comprising:

storing the modulated value after both modulating steps,

repeating the selecting, determining, modulating, receiving, second determining, transmitting, and storing steps for at least two pieces of the data series.

5. A data signal embodied in a carrier wave readable by a computing system and encoding instructions for executing a process performing the method recited in claim **3**.

6. The method according to claim **3**, wherein the providing step includes transmitting the modulated value.

7. The method according to claim **3**, wherein the accumulating step includes recording the data series.

8. The method according to claim **3**, wherein said providing step outputs the predicted cognitive performance to at least one of a display, a data file, an antenna, and a printing device.

9. The method according to claim **3**, wherein the selecting step selects the function from a group consisting of a wake function, a sleep function, and a sleep inertia function.

10. The method according to claim **3**, wherein the selecting step selects the function from a group consisting of a wake function, a sleep function, a delay function, and a sleep inertia function.

11. The method according to claim **3**, wherein the time of day value is selected from a series of time of day values representing a curve having a period of 24 hours.

12. A method in an actigraph for determining a cognitive performance level comprising:

accumulating a data series representing wake states and sleep states of an individual based on analysis of movement detected by the actigraph using a sleep scoring system,

selecting a function based on the data series,

determining a cognitive performance capacity based on the selected function and a prior cognitive performance capacity,

modulating the cognitive performance capacity with a time of day value,

providing the modulated value,

giving a cognitive performance test to determine the actual cognitive performance level of the individual, and

adjusting the cognitive performance level based on results of the cognitive performance test.

13. The method according to claim **12**, further comprising:

storing the modulated value,

repeating the selecting, determining, modulating, transmitting, and storing steps for each piece of the data series.

14. A method in an actigraph for determining a cognitive performance level comprising:

accumulating a data series representing wake states and sleep states of an individual based on analysis of movement detected by the actigraph using a sleep scoring system,

selecting a function based on the data series,

determining a cognitive performance capacity based on the selected function and a prior cognitive performance capacity,

modulating the cognitive performance capacity with a time of day value,

providing the modulated value, and

adjusting the weights used in determining the cognitive performance level.

15. The method according to claim **14**, further comprising:

storing the modulated value after both modulating steps,

repeating the selecting, determining, modulating, receiving, second determining, transmitting, and storing steps for at least two pieces of the data series.